

ABSTRACT

A photo-ionization detector having an adjustable drive power for a UV lamp implements a calibration operation that determines measurement signals for a series of drive power levels and based on the resulting measurement signals selects one or more drive power levels for normal operation of the PID. The calibration operation permits use of UV lamps having a wider range of performance levels and thereby improves manufacturing yields and extends the useful life of the PID. During normal operation, the PID further fine-tunes the drive power level to compensate for expected or measured degradation in lamp performance. Accordingly, between calibrations, the PID maintains a more uniform UV intensity for more accurate measurements. To expand the measurement range of the PID, the calibration process can select two or more power levels for use when measuring different gas concentrations.